

AMENDMENTS TO THE SPECIFICATION

Please replace the Title of the Invention of the original specification with the following replacement paragraph. In accordance with 37 C.F.R. §1.121(b)(1), amendments to the title of the invention are considered to be an amendment of a paragraph, and so the following replacement paragraph includes the full text of the title with markings to show all the changes relative to the previous version of the title. No new matter is added in making such amendment.

TITLE: CASCADE CAPACITOR METHOD FOR ADJUSTING PERFORMANCE
CHARACTERISTICS OF A MULTILAYER COMPONENT

Please replace the Abstract of the Disclosure section of the original specification with the following replacement section. In accordance with 37 C.F.R. §1.121(b)(2), a replacement section with markings to show all changes relative to the previous version of the section is included below. Furthermore, for convenience to the Examiner and in accordance with 37 C.F.R. §1.72(b), a clean copy of the abstract is included on a separate sheet and provided in Appendix A of this paper. In making such amendments, no new matter is added to the subject application.

ABSTRACT OF THE DISCLOSURE

~~Multi-layer and cascade capacitors for use in high frequency applications and other environments are disclosed. The subject capacitor may comprise multiple capacitor components or aspects thereof in an integrated package. Such components may include, for example, thin film BGA components, interdigitated capacitor (IDC) configurations, double-layer electrochemical capacitors, surface mount tantalum products, multilayer capacitors, single layer capacitors, and others. Exemplary embodiments of the present subject matter preferably encompass at least certain aspects of thin film BGA techniques and/or IDC-style configurations. Features for attachment and interconnection are~~

~~provided that facilitate low ESL while maintaining a given capacitance value. Additional advantages include low ESR and decoupling performance over a broad band of operational frequencies. More particularly, the presently disclosed technology provides for exemplary capacitors that may function over a frequency range from kilohertz up to several gigahertz, and that may also be characterized by a wide range of capacitance values.~~

A method for adjusting the equivalent series resistance (ESR) of a multi-layer component includes providing at least first and second layers separated by an insulating layer, providing a resistive layer between the insulating layer and one of the first or second electrode layers, and adjusting the ESR of the component by varying the effective resistance of the resistive layer. The effective resistance may be varied by adjusting the composition or thickness of the resistive layer. Alternatively, the effective resistance may be varied by forming a plurality of through-holes perforating one of the electrode layers and by then adjusting the respective diameters of selected of the through-holes to vary the extent of coverage on the resistive layer. An additionally disclosed feature of the present subject matter is to incorporate dielectric layers of varied thicknesses to broaden the resonancy curve associated with a particular multi-layer component configuration.